

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Macum Energy, Inc.
Well Name/Number: Macum Mann 4-17-6S-36E
Location: NW NW Section 17 T6S R36E
County: Big Horn, **MT;** **Field (or Wildcat)** Gray Blanket Field

Air Quality

(possible concerns)

Long drilling time: No, 10 to 14 days drilling time.

Unusually deep drilling (high horsepower rig): No, double derrick drilling rig to drill to 6400' TD.

Possible H₂S gas production: Slight

In/near Class I air quality area: Yes, within the Crow Indian Reservation.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: No special concerns – using a double derrick drilling rig to drill to 6400' TD.

Water Quality

(possible concerns)

Salt/oil based mud: No, freshwater and freshwater mud system.

High water table: No high water table.

Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary to the Little Big Horn River, about 1/32 of a mile to the south of this location.

The Little Big Horn River is about 3/4 of a mile to the west from this location.

Water well contamination: Closest water wells are about 3/8 of a mile to the southwest, 5/8 of a mile to the northwest, about 3/4 of a mile to the southwest and 3/4 of a mile to the southeast from this location. Depth of these domestic irrigation and stock water wells range from 18' to 900'.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: Closest Class I stream drainages nearby is the Little Big Horn River.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☒ Other: 20 mil liner will be used in the reserve pit.

Comments: 300' of surface casing cemented to surface adequate to protect freshwater zones. Also, fresh water mud systems to be used, rule 36.22.1001. Long string will be cemented back to surface from 6400'.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None anticipated.

High erosion potential: Yes possible high erosion potential on moderate cut and fill slopes. This location will require a moderate cut, up to 25.5' and moderate fill, up to 27.0', required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, large wellsite, 200'X285' location size required.

Damage to improvements: Slight, surface use is grassland.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other Location will require a topographic tolerance due to the steep slope at this staked location, based upon inspection.

Comments: Will use exiting Interstate 90, existing county road and existing well access road. Operator intends to build about 1320' of new access road into this location.

Drilling fluids will be allowed to dry in the lined reserve pit. Cuttings will be buried in the line reserve pit when pit has dried. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Nearest public facilities are the cemetery, about 1 mile to the northwest and the State Highway Department shop about ½ of a mile to the southwest from this location. Closest residences are about 5/8 to the southeast and about 7/8 of a mile to the southeast from this location. The town of Lodgegrass is about 1.25 miles to the west from this location.

Possibility of H2S: Slight.

Size of rig/length of drilling time: Double derrick drilling rig/short 10 to 14 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing and operational BOP (BOP 3,000psig rated double ram and annular preventers) rule 36.22.10.14, should mitigate any concerns.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No
Conflict with game range/refuge management: None
Threatened or endangered Species Species identified as threatened or endangered are the Black-footed Ferret. Candidate species is the Greater Sage Grouse. Proposed species is the Mountain Plover. NH tracker website indicate six (6) species of concern in this township and range: Wolverine, Hoary Bat, Canada Lynx, Fringed Myotis, Grizzly Bear and Yellowstone Cutthroat Trout.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private surface lands. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern are discovered at this location. Montana Board of Oil & Gas has no jurisdiction over private surface lands. No concerns.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: Private surface lands. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. Montana Board of Oil & Gas has no jurisdiction over private surface lands. No concerns.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: No concerns.

Remarks or Special Concerns for this site

Well is a vertical 6400' Tensleep Formation test.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected, some short term impacts are expected, but can be mitigated.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: July 9, 2013

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website

(Name and Agency)
Big Horn County water wells
(subject discussed)
July 2, 2013
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Big Horn County
(subject discussed)

July 2, 2013
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, Section 17 T6S R36E
(subject discussed)

July 2, 2013
(date)

Montana Cadastral Website
(Name and Agency)
Surface Ownership and surface use Section 17 T6S R36E
(subject discussed)

July 2, 2013
(date)

If location was inspected before permit approval:

Inspection date: July 9, 2013

Inspector: Mr. Fraser

Others present during inspection: None